Building Newsstand Apps

Session 504

Ben Nielsen
iOS Application Engineering

These are confidential sessions—please refrain from streaming, blogging, or taking pictures

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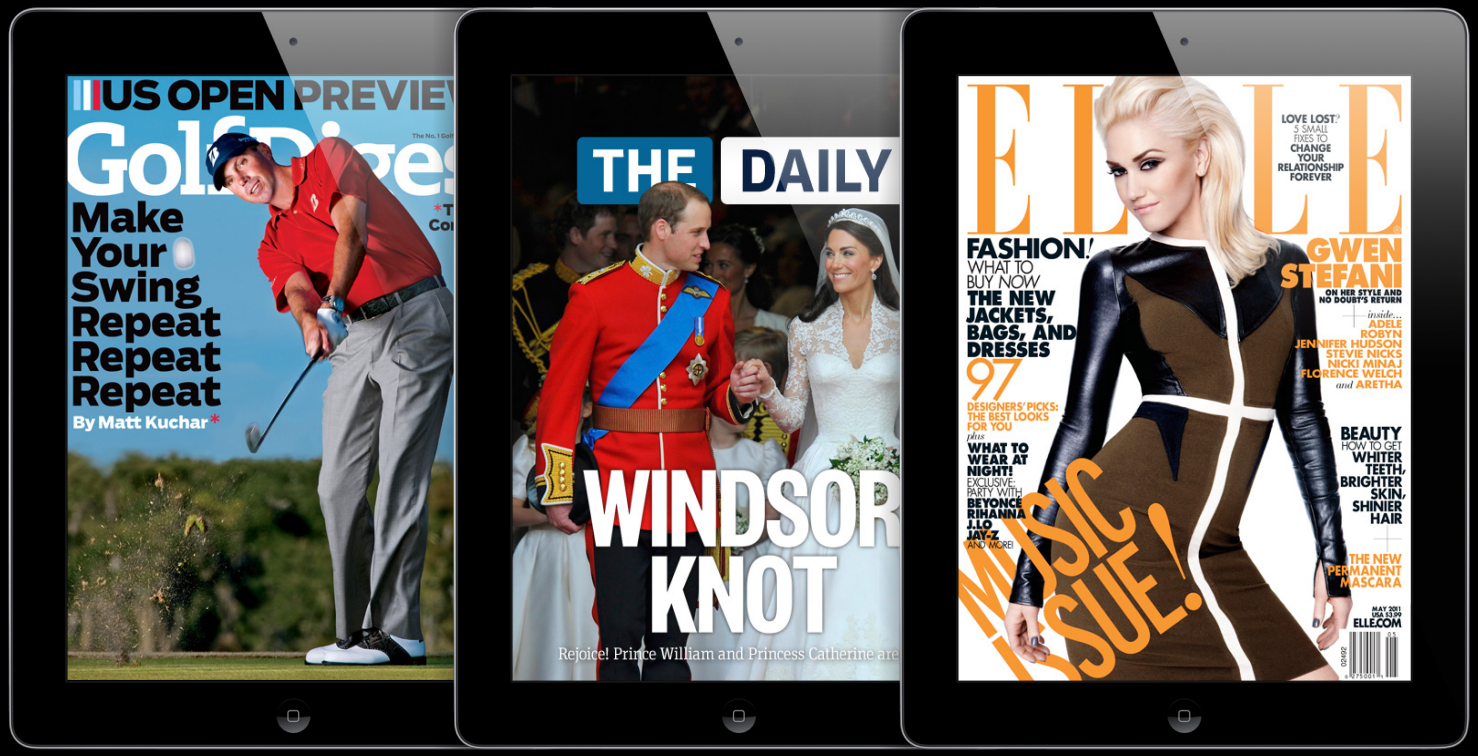
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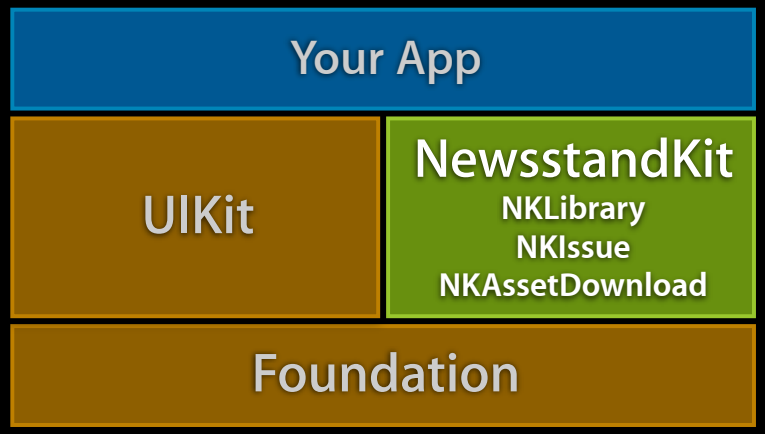
POPULAR PHOTOGRAPHY
FaceTime
Camera
Photo Booth
Settings

Newsstand

The look

- Repository for publications
- Richer visual experience
- Icons reflect content
- iTunes Store integration

NewsstandKit



- Push notification updates
- Content organization
- Background downloads

What You'll Learn

- Appearing in Newsstand
- Retrieving content
- Presenting content

Appearing in Newsstand

Jon Drummond
iOS Application Engineering

Appearing in Newsstand

Becoming a Newsstand app

- Add one key to your Info.plist

```
<key>UINewsstandApp</key>
<true/>
```

- You're now a Newsstand app!
- But you need an icon…

Appearing in Newsstand

Time for an icon

- One icon style in iOS 4
  - Home screen
  - Search
  - Settings
  - App switcher
  - Notifications

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iPad
9:41 AM
Newsstand
Store
FaceTime
Camera
Photo Booth
Settings

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A 71-SONG STREAMING PLAYLIST

Appearing in Newsstand

Newsstand icons

- Distinct from standard
  - Home screen and app
- Should reflect your cor
- Dynamic—can be upd
  your app is installed
- Additional adornment
  and newspaper styles

Appearing in Newsstand

Standard icons

- We still need them!
  - Settings, Search, Notifications…
- Newsstand icon must be defined in addition to the standard icon

Appearing in Newsstand

Standard icon specification

- Top-level key in your Info.plist with an array of image names

```
<key>CFBundleIconFiles</key>
<array>
  <string>Icon.png</string>
  <string>Icon@2x.png</string>
 ...
</array>
```

Appearing in Newsstand

Newsstand icons

- A new top-level Info.plist key
  - CFBundleIcons—a dictionary of icon styles

CFBundlePrimaryIcon

UINewsstandIcon

Appearing in Newsstand

Updating your Info.plist

```
<key>CFBundleIcons</key>
<dict>
  <key>CFBundlePrimaryIcon</key>
  <dict>
    <key>CFBundleIconFiles</key>
    <array>
      <string>Icon.png</string>
      <string>Icon@2x.png</string>
    </array>
  </dict>
</dict>
```

New top-level key

Icon style key

Existing CFBundleIconFiles

Appearing in Newsstand

Updating your Info.plist

```
<key>CFBundleIcons</key>
<dict>
  <key>CFBundlePrimaryIcon</key>
  <dict>...</dict>
    <key>CFBundleIconFiles</key>
    <array>
      <string>Icon.png</string>
      <string>Icon@2x.png</string>
    </array>
  </dict>
</dict>
```

New top-level key

Icon style key

Existing CFBundleIconFiles

Appearing in Newsstand

Customizing your Newsstand icon

- Icons are adorned to resemble their physical counterparts
  - Newspaper or magazine?
  - Binding edge
- Exist as keys inside the UINewsstandIcon style dictionary

Appearing in Newsstand

Customizing your Newsstand icon

`UINewsstandBindingTypeMagazine`

Staples

Pages

`UINewsstandBindingTypeNewspaper`

Stack

Fold

`UINewsstandBindingEdgeLeft`

`UINewsstandBindingEdgeRight`

`UINewsstandBindingEdgeBottom`

Appearing in Newsstand

Updating your Info.plist

```
<key>CFBundleIcons</key><dict>
  <key>UINewsstandIcon</key><dict>
    <key>CFBundl                                  </array>
    <key>UINewss                                  y>
    <string>UINe                                  ewspaper</string>
    <key>UINewss                                  y>
    <string>UINe                                  ottom</string>
  </dict>
</dict>
```

Newsstand style key and icon files

Options

Appearing in Newsstand

Additional considerations

- Icons need not be square
  - Use a shape that matches your physical appearance
- You must still include CFBundlePrimaryIcon
  - Standard and Newsstand icon are both needed
- Backward compatibility
  - CFBundleIcons is required for Newsstand apps in iOS 5
  - Can coexist with existing icon keys for earlier versions of iOS

Demo

Creating a Newsstand App

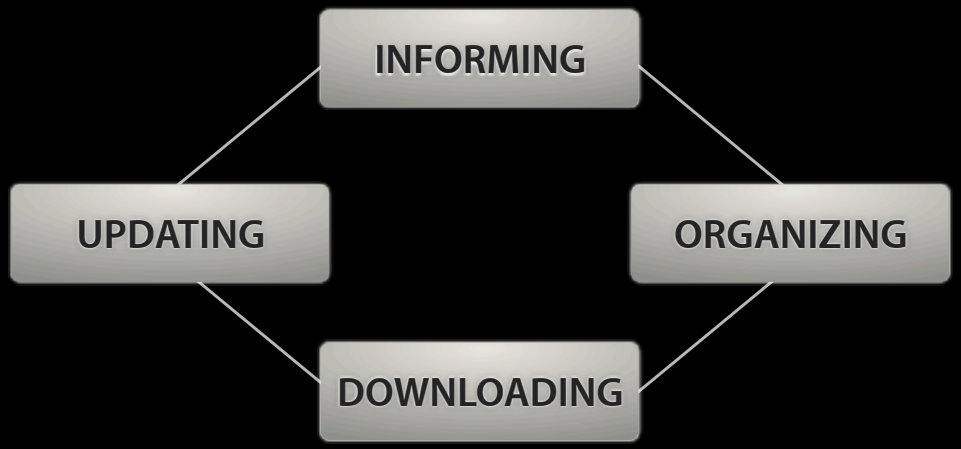
Handling Updates

Ben Nielsen
iOS Application Engineering

Handling Updates

Retrieving and presenting content

- Informing the app
- Organizing issues
- Downloading content
- Updating your icon

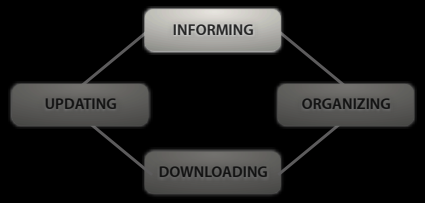


Handling Updates

Informing the App

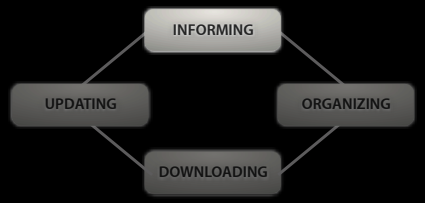
Informing the App

Push notifications



Informing the App

Newsstand Push Notifications



- Registration Type

  `UIRemoteNotificationTypeNewsstandContentAvailability`

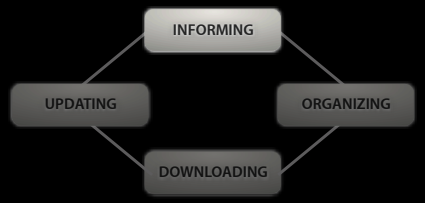
- Payload Key

```
{
    'aps':{
        'content-available':1
    }
}
```

- Once per day
  - NSUserDefaults: `@"NKDontThrottleNewsstandContentNotifications"`

Informing the App

Newsstand Push Notifications



- Background mode

```
<key>UIBackgroundModes</key>
<array>
    <string>newsstand-content</string>
</array>
```

- Limited time

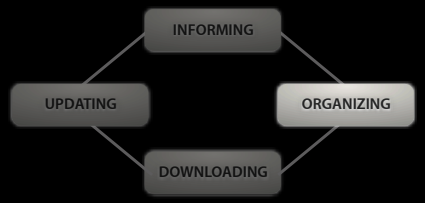
```
-[UIApplication beginTaskWithExpirationHandler:]
```

Handling Updates

Organizing issues

Organizing Issues

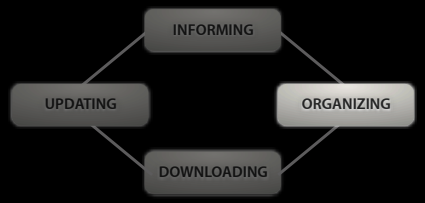
Using NKLibrary



- Provides persistent state for:
  - Available issues
  - Ongoing downloads
  - Issue being read
- Organizes issues
  - Uses app's Caches directory
  - Improves resource management

Organizing Issues

NKIssues



- Creating issues
  - Unique name
  - Publication date

```
NKIssue *myIssue = [myLibrary addIssueWithName:issueName date:issueDate];
```

  - Maintains a repository within the library

```
NSURL *baseURL = [myIssue contentURL];
```

- Setting the current issue

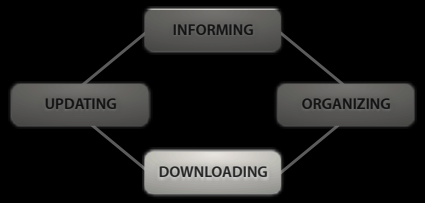
```
[myLibrary setCurrentlyReadingIssue:myIssue];
```

Handling Updates

Downloading content

Downloading Content

NKAssetDownload

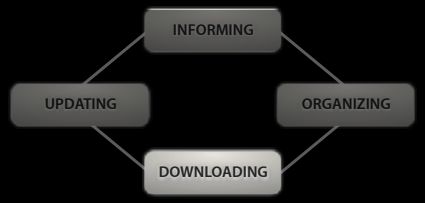


- Handles data transfer
  - Keeps going
- Uses NSURLConnectionDelegate
- Wake for critical events

  `newsstand-content`
- Wi-Fi only in background

Downloading Content

Setup

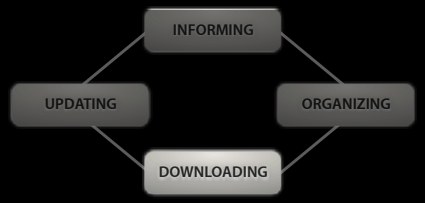



```
NSArray *itemsToDownload = !! query server for list of assets

for (item in itemsToDownload) {
    NSURLRequest *downloadRequest = [item URLRequest];
    NKAssetDownload *asset = [issue addAssetWithRequest:downloadRequest];
    NSURLConnection *connection = [asset downloadWithDelegate:myDelegate];
}
```

Downloading Content

NSURLConnectionDownloadDelegate



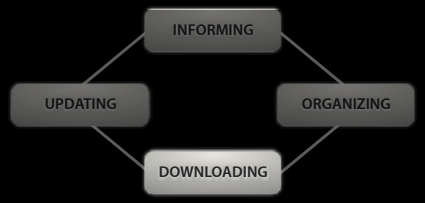

```
[asset downloadWithDelegate:myDelegate];
```

- Implements NSURLConnectionDelegate
  - Status
  - Authentication
  - Completion
- Modifications

~~connection:didReceiveData:~~

Downloading Content

NSURLConnectionDownloadDelegate




```
[asset downloadWithDelegate:myDelegate];
```

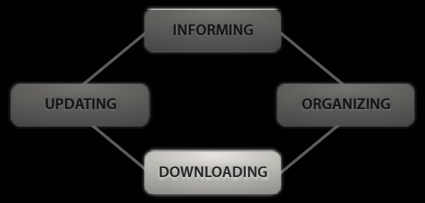
- Implements NSURLConnectionDelegate
  - Status
  - Authentication
  - Completion
- Modifications

```
-connection:didWriteData:totalBytesWritten:expectedTotalBytesWritten:
-connectionDidResumeDownloading:totalBytesWritten:expectedTotalBytesWritten:
```

~~-connectionDidFinishLoading:~~

Downloading Content

NSURLConnectionDownloadDelegate




```
[asset downloadWithDelegate:myDelegate];
```

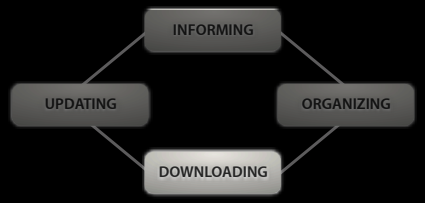
- Implements NSURLConnectionDelegate
  - Status
  - Authentication
  - Completion
- Modifications

```
-connection:didWriteData:totalBytesWritten:expectedTotalBytesWritten:
-connectionDidResumeDownloading:totalBytesWritten:expectedTotalBytesWritten:
-connectionDidFinishDownloading:destinationURL:
```

required

Downloading Content

Background



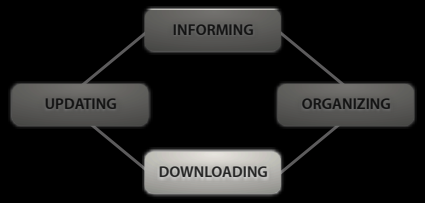
- What if the app is suspended?
  - No status updates
  - Wakes for authentication and completion

- What if the app is terminated!?
  - Relaunched in the background

```
UIApplicationLaunchOptionsNewsstandDownloadsKey
NSString *assetIdentifier = [myAssetDownload identifier];
```

Downloading Content

Reconnecting



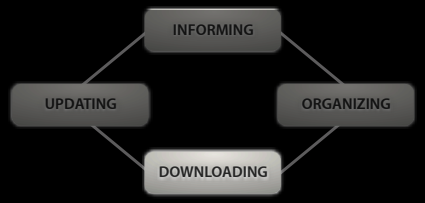
- Reconnect on launch

```
NKLibrary *library = [NKLibrary sharedLibrary];
for (NKAssetDownload *asset in [library downloadingAssets])
    NSURLConnection *connection = [asset downloadWithDelegate:myDelegate];
```

- Always!
  - Abandoned downloads may get cancelled

Downloading Content

Completion



- Success!

  `-connectionDidFinishDownloading:destinationURL:`

  - Destination is a temporary file
  - Move to issue repository

  `[myIssue contentURL]`

  - Process

  `-[UIApplication beginTaskWithExpirationHandler:];`

Demo

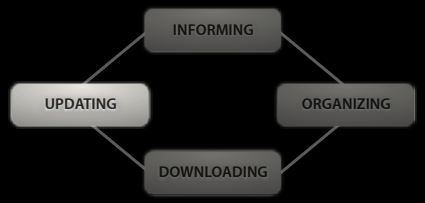
Downloading content

Updating Your Newsstand Icon

Jon Drummond

Updating Your Newsstand Icon

Showing off your new content

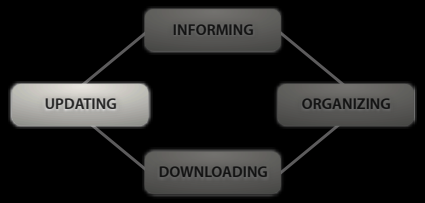


- Part of getting new content is obtaining a new icon
- Once content is ready to view, show it off!
  - Update your Newsstand icon
  - Inform readers of new issues via badging

May 2011

Updating Your Newsstand Icon

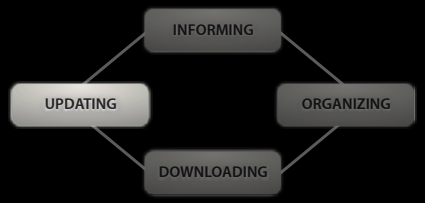
Update your icon



- Publication covers play a huge role in the physical newsstand
  - We want your icons to do the same here
- Your icon should represent your most recent content
  - But don't show it until your content is ready to read!
- Changes the appearance of your app in Newsstand and app switcher
  - Overrides your UINewsstandIcon, not your standard app icon

Updating Your Newsstand Icon

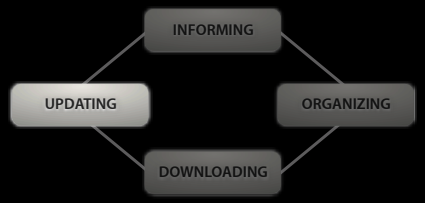
Update your icon



- Simple!
  - `-[UIApplication setNewsstandIconImage:(UIImage*)]`
- Can be used while running in the background, so update whenever your content is ready

Updating Your Newsstand Icon

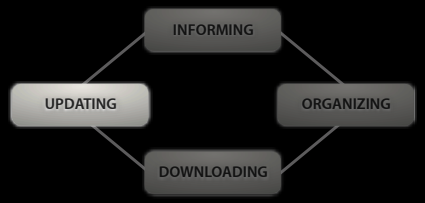
Badge your app



- Badges in Newsstand have a revised look: "New" sash
- Add a badge when a user has not yet opened a particular issue
  - Remove the badge once it has been read

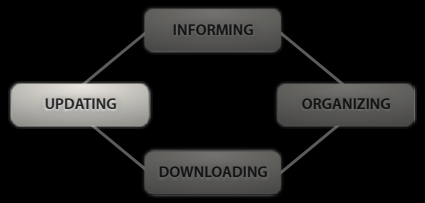
Updating Your Newsstand Icon

Badge your app



- Uses existing badge API
  - `[UIApplication setApplicationIconBadgeNumber:(NSInteger)]`
- As with normal badging...
  - Non-zero value shows the sash
  - Zero clears the sash
- The count is not shown, but it should track your unread issues

Updating Your Newsstand Icon

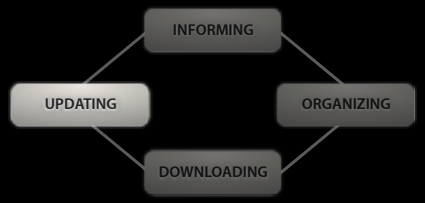



```
- (void)connectionDidFinishDownloading:(NSURLConnection*)connection
                        destinationURL:(NSURL*)destinationURL {



}
```

Updating Your Newsstand Icon

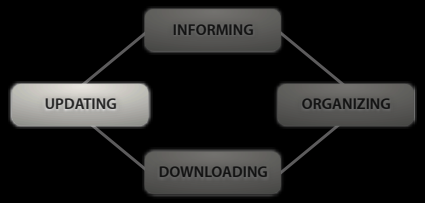



```
- (void)connectionDidFinishDownloading:(NSURLConnection*)connection
                        destinationURL:(NSURL*)destinationURL {
    // get issue content location
    NKIssue *latestIssue = [[connection newsstandAssetDownload] issue];
    NSURL *issueURL = [[latestIssue contentURL] URLByAppendingPathComponent:...];



}
```

Updating Your Newsstand Icon




```
- (void)connectionDidFinishDownloading:(NSURLConnection*)connection
                        destinationURL:(NSURL*)destinationURL {
    // get issue content location
    NKIssue *latestIssue = [[connection newsstandAssetDownload] issue];
    NSURL *issueURL = [[latestIssue contentURL] URLByAppendingPathComponent:...];

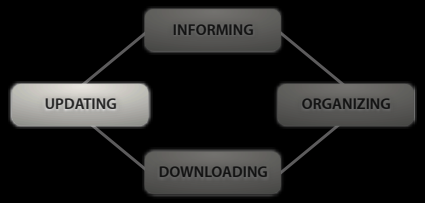
    // move issue into place -- don't forget to check errors!
    NSFileManager *fileManager = [NSFileManager defaultManager];
    [fileManager moveItemAtURL:destinationURL toURL:issueURL error:NULL];





}
```

Updating Your Newsstand Icon




```
- (void)connectionDidFinishDownloading:(NSURLConnection*)connection
                        destinationURL:(NSURL*)destinationURL {
    // get issue content location
    NKIssue *latestIssue = [[connection newsstandAssetDownload] issue];
    NSURL *issueURL = [[latestIssue contentURL] URLByAppendingPathComponent:...];

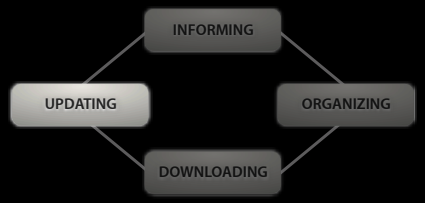
    // move issue into place -- don't forget to check errors!
    NSFileManager *fileManager = [NSFileManager defaultManager];
    [fileManager moveItemAtURL:destinationURL toURL:issueURL error:NULL];

    // get our new icon and update our app!
    UIImage *newIcon = [self getIconFromIssue:latestIssue]; // up to you



}
```

Updating Your Newsstand Icon

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    NSFileManager *fileManager = [NSFileManager defaultManager];
    [fileManager moveItemAtURL:destinationURL toURL:issueURL error:NULL];

    // get our new icon and update our app!
    UIImage *newIcon = [self getIconFromIssue:latestIssue]; // up to you
    UIApplication *app = [UIApplication sharedApplication];
    [app setNewsstandIconImage:newIcon];
    [app setApplicationIconBadgeNumber:[app applicationIconBadgeNumber]+1];
}
```

Demo

Updating your Newsstand icon

Summary

- Becoming a Newsstand app is easy
- Get content updates in the background
- Use NewsstandKit to download and organize content
- Update your Newsstand icon and badge to show off your content

More Information

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Safari Technology Evangelist
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Related Sessions

App Publishing with iTunes Connect	Presidio Thursday 10:15AM
Local and Push Notifications	Pacific Heights Thursday 4:30PM
Adopting Multitasking	Russian Hill Thursday 4:30PM

Labs

Newsstand Lab	Internet & Web Lab B Thursday 2:00PM
App Publishing with iTunes Connect Lab	Internet & Web Lab A Thursday 2:00PM
Local and Push Notifications Lab	Internet & Web Lab A Friday 9:00AM

Q&A

WWDC2011